DIGITAL INFORMATION GUIDE READING SYSTEM AND METHOD

FIELD OF THE INVENTION

The present invention relates to an information guide reading system and method and particularly to a digital information guide reading system and method.

BACKGROUND OF THE INVENTION

The rising of the Internet has accelerated information revolution. The availability of broadband network further ushers the arrival of "knowledge economic age". As the broadband network can transmit huge amount of dynamic multimedia information, and hardware for reading multimedia information also are gradually mature, to publish dynamic information on networks becomes possible and practical now.

Books and magazines that are published by traditional publishers generally have plane printing contents including texts and pictures. The medium being used is paper. Distribution channels are bookstores. Some publishers try to augment the contents by including some video and audio materials. They are mainly to explain the content of the plane printings. Due to carrier natures, they must rely on other media such as audio or video tapes to accomplish the goals. Readers not only have to visit bookstores to search the required books but also have to cover many different carrier media while reading. It is troublesome, but unavoidable. Now the broadband network is a trend with growing acceptance. Transmission of multimedia video and audio contents is no longer a problem. And hardware technologies for browsing multimedia contents are also well developed. Hence if publishing contents can be digitized in the format of web page contents, and networks are used as publishing channels, the web pages may contain texts, pictures and multimedia video and audio contents, adding the powerful transmission capability of networks to reach anywhere easily, readers can conveniently procure required publishing contents and read online. All the foregoing problems and troubles that bother publish industry and readers can be resolved effectively.

As discussed above, publishing of plane medium sometimes has to augment with video and audio materials for guide reading purposes. Those guide reading contents generally are focused on the plane contents to serve targeted readers, thus do not have many variations. They are mostly plain speaking or are augmented with video images

to meet description or explanation purposes. However when utilizing web pages as publishing carriers, the guide reading targets are web pages. Guide reading contents can become much more lively and vivacious. As the web pages not only can include plane contents, but also can dynamically be linked to related contents. They also can

5 dynamically present multimedia contents. Most important, web pages can respond to guide reading actions triggered by web page events (such as mouse movement events, linking events generated by click of a button and hyperlink, etc.). Thus guide reading contents are not only limited to plain speaking in video or audio fashion but also include dynamic guide reading actions. And the guide reading actions may be realistically

10 presented by triggered web page events.

Therefore, utilizing web pages as content carriers, and networks as publishing channels, and web page events as guide reading contents can achieve online publishing objectives, and, hence, will create a new direction for traditional publishing industry.

15 ## SUMMARY OF THE INVENTION

The object of the invention is to provide a digital information guide reading system and method that combines the Internet and web page properties to enhance guide reading functions and capability.

According to one embodiment of the invention, the digital content guide reading

20 method includes at least the following steps:

1. Presenting an article content on an article window located in a container at a user end. The article content is a digitized document responding to events through input device. The carrier of article content is web pages, and the container is a web page browser.

25 2. Loading a guide reading content in the article window. The guide reading content includes at least a guide reading event trace for linking an intent guide reading portion in the article content. When the intent guide reading portion is guided, the required guide reading actions by a guide (i.e. operating the mouse or pressing the keyboard, etc.) in the container or in the article contents will trigger the guide

30 reading event trace comprising the information related to all guide reading events.

3. Loading a guide reading playing mechanism in the article window. The guide reading playing mechanism includes at least an event triggering mechanism.

4. The event triggering mechanism of the guide reading playing mechanism can be based on a user's designated intent guide reading portion in the article content, search and retrieve the guide reading event trace which are linked to the intent guide reading portion, and trigger the guide reading event trace according to event triggering time sequences in the article window. The event triggering mechanism further includes functions to continue, to pause or to resume playing of the guide reading event trace.

The container in the method set forth above may be stored in a computer readable storage medium. The container may be a software program (such as web page browser, electronic book reading software, computer assisted instructions software, document processing software, spreadsheet (or trial balance) software, database software, presentation software, electronic mail software and the like). The method further includes remark contents linked to keywords of the article content loading from a remark window located in the container at the user end to allow the user to inquire these remarks of the keywords of the article content. Or the remark window may be loaded with remark contents linked to a plurality of independent units composing of the article content to allow the user to inquire these remarks related to the independent units of the article.

The guide reading content further includes at least a guide reading audio data linked to the intent guide reading portion of the article content. And the guide reading playing mechanism further includes an audio playing mechanism which may be located in the article window to couple with the event triggering mechanism to synchronously play the guide reading audio data of the intent guide reading portion while triggering the guide reading event trace of the intent guide reading portion.

In addition, the method set forth above further includes loading a guide reading recording mechanism in the article window. The guide reading recording mechanism includes at least an event recording mechanism for recording the guide reading event trace. The guide reading recording mechanism also includes an audio recording mechanism to allow the user to synchronously record the guide reading audio data while recording the guide reading event trace.

According to an embodiment of the invention, a server is set up to provide online guide reading web page contents. The server includes at least: a central processing unit, a communication interface, a memory and a guide reading playing mechanism. The

communication interface is for connecting a communication link. The memory stores at least a digitized article content capable of responding to events through input device and a guide reading content. The article content may be displayed on an article web page window in a container at a user end through the communication interface via a

5 communication link for the user to read. The guide reading content includes at least a guide reading event trace which may be loaded in the article web page window through the communication interface via a communication link. The guide reading event trace is linked to an intent guide reading portion in the article web page. When the intent guide reading portion is guided, the required guide reading actions (i.e. operating the

10 mouse or pressing the keyboard, etc.) by a guide in the container or in the article web page will trigger the guide reading event trace comprising the information related to all guide reading events.

The guide reading playing mechanism may be loaded in the article web page window through the communication interface via a communication link for playing the guide

15 reading content in the article web page window. The guide reading playing mechanism includes at least an event triggering mechanism which may be based on the intent guide reading portion designated by the user on the article web page to search and retrieve the guide reading event trace linked to the intent guide reading portion from the memory, and the event triggering mechanism will trigger the guide reading event trace according

20 to event triggering time sequences in the article web page window. The event triggering mechanism further includes functions to continue, to pause or to resume playing the guide reading event trace.

The memory set forth above further includes remark contents linked to keywords of the article content. The remark contents may be linked through the communication

25 interface via a communication link to allow the user to inquire keyword remarks in the article content. Or the memory set forth above may further include remark contents linked to a plurality of independent units composing of the article content. The remark contents may be linked through the communication interface via a communication link to allow the user to inquire the remarks related to the independent units of the article.

30 The guide reading content further includes a guide reading audio data linked to the intent guide reading portion in the article web page. The guide reading audio data may be loaded through the communication interface via a communication link into the article web page window. And the guide reading playing mechanism further includes an audio playing mechanism which may be loaded through the communication interface via a

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communication link into the article web page window. The audio playing mechanism in the article web page window may couple with the event triggering mechanism to synchronously play the guide reading audio data of the intent guide reading portion while triggering the guide reading event trace of the intent guide reading portion.

5   Moreover, the server mentioned above further includes a guide reading recording mechanism to allow the server end to record the guide reading content, or through the communication interface via a communication link load into the article web page window to allow the user to record the guide reading content of the intent guide reading portion. The guide reading content recorded by the user and identification data of the

10   intent guide reading portion and the users' identification data may be transferred back and stored in the server, or stored at the user end, and set the storing path to the guide reading playing mechanism in the article web page window. The guide reading recording mechanism includes at least an event recording mechanism to allow the server end to record the guide reading event trace, or through the communication interface via

15   a communication link load into the article web page window to allow the user to record the guide reading event trace.

The guide reading recording mechanism further includes an audio recording mechanism to allow the server end to synchronously record the guide reading audio data while recording the guide reading event trace, or through the communication interface

20   via a communication link load into the article web page window to allow the user to synchronously record the guide reading audio data while recording the guide reading event trace.

According to an embodiment of the invention, the digital content guide reading apparatus includes at least: a central processing unit, a display device, a container, a

25   memory and a guide reading playing mechanism. The memory stores at least a digitized article content capable of responding to events through input device and a guide reading content. The article content may be displayed on an article window of the container in the display device for users to read. The guide reading content includes at least a guide reading event trace which may be linked to an intent guide reading portion of the article

30   content. When the intent guide reading portion is guided, the required guide reading actions (i.e. operating the mouse or pressing the keyboard, etc.) by a guide in the container or in the article content will trigger the guide reading event trace comprising the information related to all guide reading events.

The guide reading playing mechanism is used to play the guide reading content in the

article window and includes at least an event triggering mechanism which may be based on the intent guide reading portion designated by users in the article content to search and retrieve the guide reading event trace linked to the intent guide reading portion from the memory, and trigger the guide reading event trace according to event triggering time

5 sequences in the article window. The event triggering mechanism further includes function to continue, to pause or to resume playing the guide reading event trace.

The apparatus set forth above includes an electronic book reading device or a Personal Digital Assistant (PDA). The memory further includes a remark contents linked to keywords of the article content to allow users to inquire the remarks of the

10 keywords of the article content. Or the memory may also includes remark contents linked to a plurality of independent units composing of the article content to allow users to inquire the remarks related to the independent units of the article.

Moreover, the guide reading content set forth above further includes at least a guide reading audio data linked to the intent guide reading portion of the article content. And

15 the guide reading playing mechanism further includes an audio playing mechanism which may be located in the article window (refer to the original p12,) to couple with the an event triggering mechanism to synchronously play the guide reading audio data of the intent guide reading portion while triggering the a guide reading event trace of the intent guide reading portion.

20 In addition, the apparatus set forth above further includes a guide reading recording mechanism for recording the guide reading content. Furthermore, the apparatus further includes a communication interface connecting to a communication link for loading the guide reading recording mechanism, guide reading playing mechanism and contents of the memory through the communication interface via a communication link. The guide

25 reading recording mechanism includes at least an event recording mechanism for recording the guide reading event trace. The guide reading recording mechanism also includes an audio recording mechanism to allow users to synchronously record the guide reading audio data while recording the guide reading event trace.

The foregoing, as well as additional objects, features and advantages of the invention

30 will be more readily apparent from the following detailed description, which proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic block diagram of an environment of the invention.

FIG. 2 is an architecture block diagram of a preferred embodiment of the digital information guide reading system of the invention.

5 FIG. 3 is a process flow chart of an embodiment for recording guide reading contents according to the method of the invention.

FIG. 4 is a process flow chart of an embodiment for playing guide reading contents according to the method of the invention.

FIG. 5 is a process flow chart of an embodiment of a method for digital information 10 guide reading according to the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The invention aims to provide techniques for recording and playing web page guide reading contents. Because the webpage events are triggered via input device, the web 15 page contents can be dynamically presented, and their container (browser) also can respond to events via input device. If a guide records these events triggered and the recording forms an event trace in event triggering time sequence. Then to trigger the event trace in time sequence can present the previous dynamic operation processes. Hence in addition to video and audio materials, the web page guide reading content can 20 also include a guide reading event trace which is a guide reading process recorded previously by the guide. When playing the guide reading content, video and audio output may be played to lead the reader to read web page contents and the reader can trigger corresponding events in the guide reading event trace to present the previous dynamic operation processes.

25 The invention may be adopted on web site systems to provide guide reading function. The web site system provides article contents, remark contents, guide reading contents and guide reading playing mechanism to a plurality of users for online reading web page contents that have guide reading function. I.E. the web site system can through networks present an article content on an article web page window

30 at a user end, and load into the user end a guide reading content and a guide reading playing mechanism. And the user can utilize the guide reading playing mechanism to play the guide reading content to get help when reading the article content, and to do

online real time inquiry for the remarks of the article content. Referring to FIG. 1 for an environment of the invention, there are a plurality of users 200 who may logon a web site system 100 through a communication link (such as a network) 300 to do online reading of those contents with guide reading function.

5   Referring to FIG. 2 for a system architecture of an embodiment of the invention, the web site system 100 includes at least a communication interface 102, a central processing unit 104, a memory 106, a guide reading recording mechanism 114 and a guide reading playing mechanism 116. The memory 106 stores at least an article content 108, a remark content 110 and a guide reading content 112. The guide reading

10   content 112 includes a guide reading audio data 112B and a guide reading event trace 112A. The guide reading recording mechanism 114 includes an audio recording mechanism 114B and an event recording mechanism 114A. The guide reading playing mechanism 116 includes an audio playing mechanism 116B and an event triggering mechanism 116A.

15   The article content 108 is a digitized document capable of responding to events through input device. The article content 108 may be divided in a plurality of article independent units (such as article paragraphs, sentences or pictures) for storing separately. The remark content 110 may also be divided in a plurality of remark independent units and stored separately. The article independent units and keywords

20   contained therein and the remark independent units are linked to allow users to inquire the remarks for the article independent units and keywords contained therein when reading the article content 108. The remark independent units and keywords contained therein may also be linked to the remark independent units to allow users to inquire the remarks of the remark independent units and keywords when reading the remark content

25   110. The guide reading audio data 112B are guide reading (browsing and instructions) audio data for the article content 108 and remark content 110. The guide reading event trace 112A is an event trace composed of all guide reading events related information triggered by a guide's guide reading actions (i.e. operating the mouse or pressing the keyboard, etc.) via input device in the web page or its container (remark web page or its

30   container).

The guide reading recording mechanism 114 is for recording the guide reading content 112. The audio recording mechanism 114B is for recording the guide reading audio data 112B. The event recording mechanism 114A is for recording the guide reading event trace 112A. In addition, the guide reading playing mechanism 116 is for

35   playing the guide reading content 112. The audio playing mechanism 116B is for

playing the guide reading audio data 112B and the event triggering mechanism 116A is coupled with the audio playing mechanism 116B to synchronously trigger the guide reading event trace 112A.

5   The communication interface 102 connects a communication link for transmitting messages to or receiving messages from users. The central processing unit 104 is coupled with the communication interface 102, memory 106, guide reading recording mechanism 114 and guide reading playing mechanism 116 to process users' requesting messages transmitted through the communication interface 102, and based on this web site system 100 transmits the article content 108 and remark content 110 to users'

10   locations, and downloads the guide reading recording mechanism 114 or the guide reading playing mechanism 116 to users' locations, and transmits the guide reading content 112 to users' locations.

Whether to retain or discard the events recorded by the event recording mechanism 114A depends on if they are required for guide reading. For instance, the event of

15   moving the cursor to indicate guide reading positions, event of reversing character color, event of inquiring remark content 110, event of closing a remark window, event of linking a hyperlink object, and the like are events should be recorded. Regarding the related information of those events that should be recorded, in terms of web page event, some web page objects have specific event processing procedures. For instance, a

20   multimedia playing button (btnObj) may be used to play the multimedia object. When users click the button once, the contents of the multimedia object are started to play. Hence the related information of the web page event should be recorded are: identification data of the button, even type (onclick) and triggering time. However there is no need to record processing procedures for the event. As when playing the guide

25   reading content 112, the event triggering mechanism at the triggering time, sets the button to be clicked (btnObj.click( )), or generates click pseudo events (pseudo events, btnObj_onclick), and then the multimedia object starts to play automatically. However some web page events do not have preset web page event processing procedures, and event processing procedures cannot be activated through triggering the web page event,

30   and then the event processing procedures must be recorded. But there is no need to record the event type, such as to reverse color of a keyword in an object of an article web page. The recording web page event related information is: keyword and identification data of the object and triggering time; but the event type is none. Contents of the processing procedures are procedures required to reverse the color of the keyword

35   in the object so that when the guide reading content 112 is played, the event triggering

mechanism 116A reverses the color of the keyword in the object at the triggering time. Of course, the recording event is not limited to web page events, and container events (container for holding the web page) may also be recorded. Regarding the event of reversing the color of a keyword in an object on an article web page set forth above,

5 mouse event at the triggering time may be recorded, i.e. record mouse position and action (dragging or double click) at the triggering time. When the guide reading content 112 is played, the event triggering mechanism 116A then drives the mouse to the selected location to present the effect of actions of dragging or double click at the triggering time, and the effect is the reverse of the color of the keyword in the object.

10 The guide reading recording mechanism 114 includes, besides the event recording mechanism 114A, the audio recording mechanism 114B. Referring to FIG. 3 for a process flow chart of an embodiment of the invention for recording the guide reading content 112 (triggering events on an article web page are taken as the recording event example):

15 1. Time prior to t0: An article content consisting of a plurality of article independent units is loaded into an article web page window, and a timer is installed in the article web page.

2. Time t0: The timer set in the article web page is activated. A guide starts to guide the article web page content. The audio recording mechanism starts to record

20 voice speech of the guide, and the event recording mechanism starts to record web page events related information (identification data of web page objects related to the events, event types, event processing procedures and event triggering time) triggered on the article web page by the guide's guide reading actions (i.e. operating the mouse or pressing the keyboard, etc.) through input device on a

25 guide reading event trace (e-Trace).

3. Time t1: The audio recording mechanism continues to record voice speech of the guide. The article web page window produces the first web page event. The event recording mechanism records a web page object (Obj1), event type (Kind1), processing procedures (Proc1), and triggering time (t1) that are all related to the

30 first web page event on the first element e1 of the guide reading event trace (e-Trace).

4. Time t2: The audio recording mechanism continues to record voice speech of the guide. A multimedia object in the article web page responds to guide requirements and the playing button is pressed to start playing. The event

35 recording mechanism records identification data (Obj2), event type (onclick),

processing procedures (none), triggering time (t2) of the playing button on the second element e2 of the guide reading event trace (e-Trace). As the playing button is linked to the event processing procedures, it's not necessary to record the processing procedures. All we need to do is to record the event type as onclick. When playing time reaches t2, the Obj2 button is clicked, or an Obj2.click ( ) is set, or a pseudo event Obj2_onclick is generated.

5. Time t3: The audio recording mechanism continues to record voice speech of the guide. The article web page window produces the third web page event. The event recording mechanism records a web page object (Obj3), event type (Kind3), processing procedures (Proc3), and triggering time (t3) that are all related to the third web page event on the third element e3 of the guide reading event trace (e-Trace).

6. Time t4: The audio recording mechanism continues to record voice speech of the guide. The multimedia object in the step 4 has a stop playing button pressed to stop playing in response to the requirement of the guide. The event recording mechanism records the identification data (Obj4), event type (onclick), processing procedures (none), and triggering time (t4) of the stop playing button on the fourth element e4 of the guide reading event trace (e-Trace).

7. Time t5: The audio recording mechanism continues to record voice speech of the guide. The guide in response to guide requirements selects (or reverses color of) a keyword on the article web page window to inquire remark content of the keyword. The event recording mechanism records the keyword and object identification data (Obj5), event type (none), processing procedures (Proc5), and triggering time (t5) of the keyword on the fifth element e5 of the guide reading event trace (e-Trace). As the event of reversing keyword color on the article web page does not have preset processing procedures, the content of the Proc5 is: Reverse the color of the keyword in Obj5. However the event type is not recorded. When playing the guide reading content at time t5, the color of the keyword is reversed. The mouse event (mouse location and dragging or double click) at the triggering time may also be recorded so that when the guide reading content is played at time t5, the mouse is driven on that location to perform the effect of the action of dragging or double click to reverse the color of the keyword in the object.

8. Time t6: The audio recording mechanism continues to record voice speech of the guide. The guide in response to guide requirements presses inquiry button to inquire the remark content of the keyword selected (or reversed color) at step 7.

The event recording mechanism records the identification data (Obj6), event type (onclick), processing procedures (none), and triggering time (t6) of the inquiry button on the sixth element e6 of the guide reading event trace (e-Trace). The onclick event of the Obj6 has preset processing procedures which are: retrieve the keyword of the reversed color on the article web page and transmit to the server which requested the inquiry remark. The obtained remark content is presented on a smaller remark web page window.

9. Time t7: The remark web page window has been focused; the audio recording mechanism continues to record voice speech of the guide; the guide in response to guide requirements triggers a web page event on the remark web page window. The event recording mechanism records a web page object (Obj7), event type (kind7), processing procedures (Proc7), and triggering time (t7) that are all related to the web page event on the seventh element e7 of the guide reading event trace (e-Trace).

10. Time t8: The audio recording mechanism continues to record voice speech of the guide. The guide closes the remark web page window. The event recording mechanism records the identification data of the remark web page window (Obj8), event type (none), processing procedures (Proc8: required procedures for closing the remark web page window), and triggering time (t8) on the eighth element e8 of the guide reading event trace (e-Trace). There is no need to record the event type as long as the remark web page window can be closed at time t8. The mouse event (mouse location and click actions) at the triggering time may also be recorded so that when the guide reading content is played at time t8, the mouse is driven to that location to perform the effect of clicking action for closing the remark web page window.

11. Time after t8: The article web page window has been focused again; the audio recording mechanism and the event recording mechanism continue the steps set forth above to record the guide reading content.

The steps 7 and 8 set forth above depict guide's actions for inquiring remark contents on the article web page. In fact, inquiry of related remarks of the remark contents may also be done on the remark web page window. In addition, the guide reading content does not necessarily be full text guide reading of the article content. Partial section of certain web page objects (such as selected paragraphs or picture objects) may also be recorded in the guide reading content as long as the guide reading content and targets for serving guide reading are set to link. Moreover, the guide reading content may be

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recorded in the server end and downloaded into a user end, or download the guide reading recording mechanism into the user end to allow the user to do self recording. The recorded guide reading content may be transferred back to the server for storing or being stored in the user end. When storing in the user end, performing guide reading may

5   be done by designating storage paths of the guide reading content to the guide reading playing mechanism.

The guide reading playing mechanism 116, besides including the event triggering mechanism 116A, also includes the audio playing mechanism 116B. The audio playing mechanism 116B is for playing the guide reading audio data 112B. The event triggering

10 mechanism 116A is for synchronously triggering the guide reading event trace 112A.

The following is an embodiment of the invention for the guide reading playing mechanism 116 to play the guide reading content 112 (referring to FIG. 4). The processing steps include:

1. Prior to time t0:   An article web page window at a user end shows an article

15   content, and a guide reading content and a guide reading playing mechanism are loaded. The guide reading content includes a guide reading audio data and a guide reading event trace. The guide reading playing mechanism includes an audio playing mechanism and an event triggering mechanism. There is a timer located in the web page.

20 2. The user requests to play the entire guide reading content, and the timer is activated:

   a.   At time t0:   The audio playing mechanism starts from the beginning time to play entire guide reading audio data and continues playing at the following time frames.

25   b.   At time t1:   The event triggering mechanism triggers the first event e1 in the guide reading event trace e-Trace, i.e. an article web page object Obj1 is triggered by the event triggering mechanism to generate an event Kind1 and through a Proc1 to respond to the effect of the event.

   c.   At time t2:   The event triggering mechanism triggers the second event e2,

30   and a multimedia object on the article web page starts playing. The playing button Obj2 is triggered by the event triggering mechanism to generate a pseudo event Obj2_onclick and contents of the multimedia object are played.

   d.   At time t3:   The event triggering mechanism triggers the third event e3,

35   an article web page object Obj3 is triggered by the event triggering

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mechanism to generate an event Kind3 and through a Proc3 to respond to the effect of the event.

e. At time t4: The event triggering mechanism triggers the fourth event e4. The multimedia object at step c stops playing. A stop playing button Obj4 is triggered by the event triggering mechanism to generate a pseudo event Obj2_onclick to stop the playing of the multimedia object.

f. At time t5: The event triggering mechanism triggers the fifth event e5 for reversing the color of a keyword in an object Obj5 in the article web page through a procedure Proc5. If the recording content of the fifth event e5 is a mouse event (mouse location and mouse dragging or double click actions), then the event triggering mechanism drives the mouse to that location to present the effect of actions of dragging or double click at the triggering time, and the effect is the reverse of the color of the keyword in the object.

g. At time t6: The event triggering mechanism triggers the sixth event e6. An inquiry button Obj6 in the article Web page is triggered by the event triggering mechanism to generate a pseudo event Obj2_onclick. The onclick event of the Obj6 has a preset processing procedure: fetch the character string on the article web page that has the color reversed and transfer the reversed character string to the server requesting for inquiry of remarks. The obtained remark content is presented on a smaller remark web page window at the user end.

h. At time t7: The event triggering mechanism triggers the seventh event e7. The remark web page has an object Obj7 triggered by the event triggering mechanism to generate an event Kind7 and through a Proc7 to display the effect of the event.

i. At time t8: The event triggering mechanism triggers the eighth event e8. The remark web page has an object Obj8 which is closed through a Proc8. If recording content of the eighth event e8 is a mouse event (mouse location and mouse click actions), then the event triggering mechanism drives the mouse to that location to present the effect of clicking actions to close the remark web page window.

j. After time t8: The event triggering mechanism continuously triggers the guide reading event trace e-Trace, and the audio playing mechanism also continuously plays the guide reading audio data.

3. When the user requests to start playing the guide reading content at time tp1 (wherein tp1 > t1), the timer starts counting time at time tp1, and the audio playing mechanism starts playing at time tp1. As tp1 > t1, the event triggering mechanism does not trigger e1, but consecutively triggers the rest of the guide reading event trace e-Trace members after e2 (i.e. e2, e3, ... e8).

4. When the user requests to start playing the guide reading content at time tp2 (wherein tp2 > t2), the timer starts counting time at time tp2, and the audio playing mechanism starts playing at time tp2. As tp2 > t2, and at time tp2 the multimedia object is played. Hence the multimedia object starts playing at time tp2. Thereafter, the event triggering mechanism consecutively triggers the guide reading event trace e-Trace members after e3 (i.e. e3, e4, ... e8).

5. When the user requests to start playing the guide reading content at time tp3 (wherein tp3 > t5), the timer starts counting time at time tp3, and the audio playing mechanism starts playing at time tp3. As tp3 > t5, and e5 is an event of reversing the color of a keyword in the article web page. And e6 is an event for inquiring remarks. Hence the event triggering mechanism will still trigger e5 event, thereafter, triggers the e6 event. Triggering e5 event is to provide processing procedures for the e6 event for fetching the reversed color keyword on the article web page. Thereafter, the event triggering mechanism consecutively triggers the guide reading event trace e-Trace members after e7 (i.e. e7 and e8).

6. When the user requests to start playing the guide reading content at time tp4 (wherein tp4 > t6), the timer starts counting time at time tp4, and the audio playing mechanism starts playing at time tp4. As tp4 > t6, and e6 is an event of inquiry remarks, and the remark web page window has been focused, the event triggering mechanism triggers e7 event on the remark web page window. Thereafter, the event triggering mechanism triggers e8 event in the guide reading event trace e-Trace.

Referring to FIG. 5 for an embodiment of the method of the invention for guide reading digital contents, the steps include:

1. Presenting an article content on an article window in a container at a user end. The article content may be a digitized document responding to events through input device. If the carrier of the article content is a web page, the container is a web page browser (step 502).

2. Loading a guide reading content in the article window. The guide reading content includes at least a guide reading event trace which is linked to an intent guide

reading portion of the article content. When the intent guide reading portion is guided, the required guide reading actions (i.e. operating the mouse or pressing the keyboard, etc.) by a guide in the container or in the article content will trigger the guide reading event trace comprising the information related to all of guide

5   reading events. (step 504).

    3. Loading a guide reading playing mechanism in the article window. The guide reading playing mechanism includes at least an event triggering mechanism (step 506).

    4. The event triggering mechanism in the guide reading playing mechanism can

10   search and retrieve the guide reading event trace linked to the intent guide reading portion, and according to sequences of event triggering time in the article window triggers the guide reading event trace. The event triggering mechanism further includes function to continue, to pause or to resume playing of the guide reading event trace (step 508).

15   The container of the method set forth above may be stored in a computer readable storage medium. The container may be a software program (such as a web page browser, electronic book reading software, computer assisted instructions software, document processing software, spreadsheet (trail balance) software, database software, presentation software, or electronic mail software and the like). The method further

20   includes loading a remark content in the user end's remark window to link keywords in the article content. Then the method allows the user to inquire remarks of these keywords in the article content. The method also includes loading a remark content in the user end's remark window to link a plurality of article independent units composing of the article content to allow the user to inquire remarks related to these article

25   independent units.

    The guide reading content further includes a guide reading audio data linked to the intent guide reading portion of the article content. And the guide reading playing mechanism further includes an audio playing mechanism which may be located in the article window to couple with the event triggering mechanism for synchronously

30   playing the guide reading audio data of the intent guide reading portion while the event triggering mechanism triggers the guide reading event trace of the intent guide reading portion.

    The method set forth above further includes loading a guide reading recording mechanism in the article window. The guide reading recording mechanism includes at

35   least an event recording mechanism for recording the guide reading event trace. The

guide reading recording mechanism also includes an audio recording mechanism which allows the user to record the guide reading event trace and synchronously records the guide reading audio data.

The techniques of the invention may also be transferred to Computer Assisted Instructions (CAI) optical disks now available on the market. Teaching materials and data stored in CAI optical disks further include the guide reading content and the guide reading playing mechanism so that users can use the guide reading playing mechanism to play the guide reading content of the teaching materials to accelerate learning speed and improve learning quality. Furthermore, the techniques of the invention may also be transferred to CAI software. The CAI software with the built-in guide reading playing mechanism may download teaching materials and the guide reading content of the teaching materials so that the CAI software can also play the guide reading content. The CAI optical disks or software may also include the built-in guide reading recording mechanism for recording users' guide reading contents based on users' requirements in addition to playing the guide reading content.

The general office software (document processing software, spreadsheet (trial balance) software, database software, presentation software, or electronic mail software and the like) or electronic book reading software may also adopt the techniques provided by the invention. The general office software or electronic book reading software can download not only digital content but also the related guide reading content played by the built-in guide reading playing mechanism to improve reading effect. Of course, if general office software or electronic book reading software further has the built-in guide reading recording mechanism, users may record the guide reading content related to a digital file, and then the users may send their materials that includes not only the original digital files but also the guide reading content of the files to aid reading.

By the same token, hardware for reading digital content such as electronic book readers or PDAs may also adopt the techniques of the invention to present digital content more effectively and to enhance users' reading quality. If the hardware has the built-in guide reading playing mechanism, digital content and the guide reading content may be downloaded to proceed digital reading aided with the guide reading playing mechanism to improve reading quality. Users also may record the guide reading content regarded as dynamic remarks.

In addition, the techniques of the invention may also be transferred to network browser software. For instance, the browser software may have the built-in guide reading playing mechanism (or including the guide reading recording mechanism) to

download the guide reading content related to web page contents.

While the preferred embodiments of the inventions have been set forth for purpose of disclosure, modifications of the disclosed embodiments of the invention as well as other embodiments thereof may occur to those skilled in the art. Accordingly, the appended claims are intended to cover all embodiments which do not depart from the spirit and scope of the invention.